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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|---------------------|------------------|
| 10/822,701 | 04/13/2004 | Yukichi Takamatsu | 396.43773X00 | 2921 |
| 20457 | 7590 | 12/16/2004 | EXAMINER | |
| ANTONELLI, TERRY, STOUT & KRAUS, LLP 1300 NORTH SEVENTEENTH STREET SUITE 1800 ARLINGTON, VA 22209-9889 | | | BUEKER, RICHARD R | |
| | | ART UNIT | PAPER NUMBER | |
| | | 1763 | | |

DATE MAILED: 12/16/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | |
|------------------------------|------------------------|------------------------|
| Office Action Summary | Application No. | Applicant(s) |
| | 10/822,701 | TAKAMATSU ET AL. PT |
| | Examiner | Art Unit |
| | Richard Bueker | 1763 |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

**A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM
 THE MAILING DATE OF THIS COMMUNICATION.**

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on _____.
- 2a) This action is **FINAL**. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-12 is/are pending in the application.
 - 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1-12 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

| | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____. | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| | 6) <input type="checkbox"/> Other: _____. |

Claims 1-12 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In claim 1, the phrases "the outer diameter", "the outer tube" and "the ejection port" lack proper antecedent basis, and the phrase "tube of double structure" is vague because it is written in non-idiomatic English. Also it does not appear to be technically correct to recite that a diameter is thinning. It would be more accurate to describe the invention in terms of a tapered or beveled surface. In claim 2, the phrase "0 to 60 degrees" is unclear. It is noted that page 13 of the specification discloses "10 to 60 degrees". Clarification is respectfully requested. In claims 5-7, the phrases "said outer tube" and "said inner tube" lacks proper antecedent basis. In claims 6 and 7, the phrase "protruding towards" is non-idiomatic, vague and indefinite. In claim 7, the phrase "the ejection port" (two occurrences) lacks proper antecedent basis. In claim 8, the phrase "and whose contact area with outside of said vaporizer" lacks proper antecedent basis and is non-idiomatic, vague and indefinite. In claim 9, the phrase "whose contact area with outside of said vaporizer" lacks proper antecedent basis and is non-idiomatic, vague and indefinite. Claims 8-10 are vague and indefinite because they describe a contact area but do not positively recite a contact area, so it is unclear if the claimed apparatus is so limited and is actually required to have a contact portion. In claim 11, the phrase "comprises a cooling means to cooling down" is non-idiomatic and should be changed to "comprising a cooling means for cooling".

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The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-7, 9, 10 and 12 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Lyons (6,245,150) (see Figs. 1-7) who discloses a vaporizer comprising a vaporization chamber, a liquid coating material feed portion, an exhaust port (see Fig. 1a and col. 14, lines 49-51), a heating means (col. 13, lines 33-46), and “an ejection tube of double structure” wherein an outer surface of an outer tube has a surface that tapers in a direction toward an outlet end of the ejection tube. The coating material can be reactive, including on the surface of an object to be coated and could be considered a CVD material. It is also noted that the claim recitation of a CVD material is a recitation of intended use, and Lyons’ vaporizer can inherently be used with such a material. The limitations of claim 12 also represent a recitation of intended use that do not so limit the claims. Regarding claims 3 and 4, it is noted that the claim language of these claims does not relate the recited “curved line” to the shape of a surface of the ejection tube in any concrete or specific way. To the

extent they are described in claims 3 and 4, the recited "curved line" could be an imaginary line.

Claims 1-6, 9, 10 and 12 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Benzing (5,653,813) (see Figs. 5 and 6). Benzing's vaporizer is for CVD material, and includes a vaporization chamber, a CVD material feed portion, an exhaust, a heater and an ejection tube "of double structure" including an outer surface of an outer tube that tapers in a direction toward as outlet end of the ejection tube. Regarding claims 9 and 10, Benzing (col. 12, lines 15-28) teaches the use of stainless steel as the material of construction for his vaporizer system.

Claims 8-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Benzing (5,653,813) taken in view of Toyoda (6,039,808). Benzing teaches that his vaporizer is intended for vaporizing Cu(hfac)(TMVS). Toyoda (see Fig. 3 and col. 4, line 66 to col. 6, line 25) teaches that it is desirable to provide a polytetrafluoroethylene (PTFE) coating on the inside of a metallic vaporizer supply line (which is a CVD material feed portion) when a vaporizer is supplied with Cu(hfac)(TMVS) as a CVD material for vaporization. Toyoda teaches that a PTFE coating will reduce undesirable coating formation on the interior of the Cu(hfac)(TMVS) liquid supply line. Therefore it would have been obvious to one skilled in the art to provide the liquid supply line of Benzing with a PTFE (i.e. "synthesized resin") coating on the interior of the supply line, to desirably reduce coating formation in the line as taught by Toyoda. Regarding claims 9 and 10, Toyoda also teaches (see col. 2, lines 32-34) that vaporizer systems, including

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their feed portion, are conventionally made of metal, and it would have been obvious to construct Benzing's feed portion of metal with a PTFE coating on its interior.

Claims 1-6 and 9-12 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Li (5,835,678) (see Fig. 5a) who discloses a vaporizer for CVD material that includes a vaporization chamber, a CVD material feed portion, an exhaust, a heater and an ejection tube "of double structure" including an outer surface of an outer tube that tapers in a direction toward an outlet end of the ejection tube. Li's apparatus includes a cooling means as recited in claim 11.

Claims 1-7 and 11-12 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Onabe (JP 9-143738) (see Fig. 2), who discloses a vaporizer for CVD material that includes a vaporization chamber, a CVD material feed portion, an exhaust, a heater and an ejection tube "of double structure" including an outer surface of an outer tube that tapers in a direction toward an outlet end of the ejection tube. Onabe teaches (page 15, lines 13-20) that his arrangement cools the CVD material ejection tube.

Claims 8-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Onabe (JP 9-143738) taken in view of Toyoda or Benzing, who both teach that a CVD vaporizer can be made of metal, and it therefore would have been obvious to use metal as the material of construction of Onabe's system.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Richard Bueker whose telephone number is (571) 272-1431. The examiner can normally be reached on 9 AM - 5:30 PM, Monday-Friday.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory Mills can be reached on (571) 272-1439. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Richard Bueker
Richard Bueker
Primary Examiner
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